Cho Depth (**000** to **127**)—Sets the undulation depth of the chorus sound. A higher value produces deeper undulation.

DSP (DIGITAL SIGNAL PROCESSOR)

DSP effects are applied to the path between the sound source and output. You can add the effect to any sound, even after you added reverb or chorus effect. See "DSP" on Page 32 for more details.

You can also create your own DSP effects or download the data from *www.radioshack.com* and transfer it to the keyboard. The keyboard has ten DSP effect memories so you can store custom DSP effects. See "Saving DSP Parameter Settings" on this page and "Using the Data Download Service" on Page 21 for more information.

SELECTING A DSP TYPE

1. Press **DSP**. The indicator next to DSP lights.

2. Repeatedly press **+** or **–** to select the DSP type you want. See "DSP" under "Effect List" on Page 32 for the type of the effects and the corresponding numbers. The DSP number (**000** to **109**), **Ad** (advanced tone), or **Usr** (user tone created using DSP) appears.

SETTING BASIC DSP PARAMETERS

You can change these basic DSP parameters.

DSP Vol (Volume) (**000** to **127**) — Sets the post DSP volume.

DSP Pan (**-64** to **+63**) — Sets the post DSP stereo pan (relative position between left and right channels).

DSP Hold on/oFF—Select **on** to keep the current DSP line after you change the tone. Select **oFF** to change the DSP line to the original setting of the newly selected tone.

For advanced tones, changing the tone turns off all DSP line settings except on the currently selected channel.

1. Press **DSP**.

2. Repeatedly press ◀ or ▶ (**CURSOR**) to display the parameter you want to change.

3. Repeatedly press **+** or **–** or use the number buttons to input the parameter setting you want.

4. Press ▲ (**EXIT**). This returns to the effect selection screen.

3. Repeatedly press **+** or **–** or enter a number using the number buttons to change the parameter setting.

4. Press ▲ (**EXIT**).

CHANGING DSP PARAMETERS

You can control the relative strength of a DSP and how it is applied.

1. After selecting the DSP type you want, press ▼ (**ENTER**).

2. Repeatedly press ◀ or ▶ (**CURSOR**) to display the parameter you want to change.

   Parameters 0 to 7 — These depend on the algorithm of the selected DSP. See "DSP Algorithm List" on Page 34.

   D.RvbSnd (DSP Reverb Send) (**000** to **127**) — Sets how much of the DSP-processed sound is sent to reverb.

   D.ChoSnd (DSP Chorus Send) (**000** to **127**) — Sets how much of the DSP-processed sound is sent to chorus.

3. Repeatedly press **+** or **–** or enter a number using the number buttons to change the parameter setting.

4. Press ▲ (**EXIT**).

SAVING DSP PARAMETER SETTINGS

You can save up to 10 modified DSP settings in the user area for later recall.

1. After making the DSP parameter settings you want, press ▼ (**ENTER**). The DSP number of the user area flashes.

2. Repeatedly press **+** or **–** to select the user area DSP number (100-109) you want to save.

3. Press ▼ (**ENTER**) to store the effect. **Save OK** briefly appears and the display returns to the tone or rhythm selection screen.

USING THE EQUALIZERS

The keyboard has 10 preset four-band equalizers. You can also adjust the gain of each of the four bands to suit your personal preference.

SELECTING THE EQUALIZER TYPE

1. Press **EQUALIZER**. The currently selected equalizer type appears.

2. Repeatedly press **+** or **–** or enter a number using the number buttons to select the equalizer type you want.

   The equalizer type (**Standard**, **Bass +**, **Treble +**, **Loudness**, **Mellow**, **Bright**, **Rock**, **Dance**, **Jazz**, or **Classic**) appears. The bar graph on the display shows the frequency response of the type that appears.

   Press ▲ (**EXIT**) or **EQUALIZER** to exit the equalizer setting screen.

ADJUSTING THE GAIN

1. After selecting the equalizer type, press ▼ (**ENTER**).

USING SPLIT

The SPLIT feature lets you play two different tones on opposite ends of the keyboard, so the low-end keys play one tone, and the high-end keys play another. The main tone sounds in Channel 1 and the split tone sounds in Channel 3. You can use the mixer function to change the volume or other settings in each channel. See "Using the Mixer" on Page 12. You can change the split point at any time.

1. Press **TONE.**

2. Use the number buttons to enter the three-digit number for the tone you want the high-end keys to play.

3. Press **SPLIT**. The SPLIT indicator appears.

4. Enter the three-digit number for the tone you want the low-end keys to play.

USING LAYER

The keyboard lets you play two different preset tones at the same time, creating a "layered" effect when you press one key. The first tone you select is called the *base tone* and the second tone is called the *layer tone*.

1. Press **TONE**.

2. Enter the three-digit number for the base tone then press **LAYER**. The LAYER indicator appears.

3. Enter the three-digit number for the layer tone.

USING SPLIT AND LAYER TOGETHER

You can combine the split and layer features, so you can play one layered combination of tones on the low-end keys and another on the high-end keys.

2. Repeatedly press ◄ or ► (**CURSOR**) to select the band you want to adjust (**Low**, **Mid Low**, **Mid High**, or **High**). The bar graphs for the corresponding frequency range flash.

3. Repeatedly press **+** or **–** or enter a number using the number buttons to make the adjustment for the band you want. You can adjust within the range of –12 to +12. The bar graphs change in magnitude as you adjust.

4. Press ▲ (**EXIT**) to return to the equalizer type selection screen, then press **EQUALIZER** to exit the equalizer mode. ☞

5. Hold down **SPLIT**, and press the key where you want the high-end tones to begin. The selected key's name appears.

   For example, if you set the split point to be F below middle C, **F3** appears. ☞

6. Play both the low and high-end keys to hear the selected split tones.

   To select a different low-end tone, enter the three-digit number for the new low-end tone while the SPLIT indicator appears.

   To select a different high-end tone, press **SPLIT** to turn off its indicator, then enter the three-digit number for the new high-end tone. Then press **SPLIT** again so the SPLIT indicator appears.

   To cancel SPLIT, repeatedly press **SPLIT** until its indicator disappears. ☞

4. Play the keyboard to hear the selected layered tones.

   To select a different layer tone, enter the three-digit number for the new layer tone while the LAYER indicator appears.

   To select a different base tone, press **LAYER** to turn off its indicator, then enter the three-digit number for the new base tone. Then press **LAYER** again so the LAYER indicator appears.

   To cancel LAYER, repeatedly press **LAYER** until its indicator disappears. ☞

1. If the SPLIT or LAYER indicator is on, press **SPLIT** or **LAYER** to turn it off.

2. Enter the number for the high-end base tone on the keypad.

3. Repeatedly press **SPLIT** until the SPLIT indicator appears.

4. Enter the number for the low-end base tone.

5. Repeatedly press **SPLIT** until the SPLIT indicator disappears.

6. Repeatedly press **LAYER** until the LAYER indicator appears.

7. Enter the number of the layered tone for the high-end keys.

8. Press **SPLIT**. The SPLIT indicator appears.

9. Enter the number of the layered tone for the low-end keys.

10. If desired, hold down **SPLIT** then press the key where you want the high-end tones to begin.

11. Play the keyboard to hear the selected tones.

To cancel the SPLIT/LAYER combination, press each button so both the SPLIT and LAYER indicators disappear.

USING THE PRESET AUTO-RHYTHMS

Your keyboard has 100 preset auto-rhythms that provide a steady beat for your music. The name and two-digit number of each preset auto-rhythm is listed on the keyboard's top panel. You can also download up to 4 sets of accompaniment data and store them into the keyboard's memory. See "Using the Data Download Service" on Page 21.

You can play a preset auto-rhythm on the keyboard in any of the following ways:

- Select and play a rhythm (see "Selecting/Playing an Auto-Rhythm")
- Synchronize the start of a rhythm with your music (see "Using SYNCHRO")
- Start a rhythm with a special introduction (see "Using INTRO")
- Briefly vary the pattern of a rhythm (see "Using FILL-IN")
- Play an alternate version (variation) of a rhythm (see "Using FILL-IN NEXT" on Page 10)
- Stop a rhythm with a special ending (see "Using ENDING" on Page 10)

SELECTING/PLAYING AN AUTO-RHYTHM

1. Press **RHYTHM**. ꞯꞬꞱꞮꞬꞲꞳ and the name and number of the current auto-rhythm appear. ✏

2. To select a different rhythm, choose an auto-rhythm from the 100 RHYTHMS list and enter its three-digit number on the keypad. Precede a single- or two-digit number with zeroes. Or, repeatedly press **+** or **–** to move to the next higher or lower numbered rhythm. ✏

3. Set **MODE** to **NORMAL**, then press **START/STOP** to start the selected auto-rhythm.

   Or, you can press **VARIATION/FILL-IN 1** or **2** to start the rhythm. Each of the keyboard's preset auto-rhythms has a built-in variation (alternate) to its normal beat pattern. The variation differs

slightly from the normal rhythm, so it is almost like having two rhythms in one!

4. Adjust **VOLUME** to the desired level.

5. To change the auto-rhythm speed, press (or hold down) **TEMPO** ∧ or ∨. The current tempo setting appears. ✏

6. Play the keyboard along with the auto-rhythm.

7. To select a different rhythm, repeat Steps 1 and 2.

8. To stop the auto-rhythm, press **START/STOP**.

USING SYNCHRO

This feature lets you synchronize the start of an auto-rhythm with the beginning of your music.

After you select and enter an auto-rhythm, press **SYNCHRO/FILL-IN NEXT**, then begin playing the keyboard. The keyboard automatically begins to play the rhythm when you press any key in the accompaniment keyboard range (see "Using Auto Accompaniment" on Page 10).

USING INTRO

This feature lets you start the selected auto-rhythm with a light, 3- to 8-measure introduction that blends easily into the selected rhythm.

To start a rhythm with an introduction, select and enter the rhythm, then press **INTRO/ENDING 1** or **2**. The introduction for the selected variation (1 or 2) plays, then the selected auto-rhythm automatically starts.

USING FILL-IN

This feature lets you insert a short (1- to 2-measure) variation in the beat pattern of a selected auto-rhythm. While the auto-rhythm is playing, press and release **VARIATION/FILL-IN 1** or **2**, corresponding to the variation you started with. The keyboard inserts a 1- to 2-measure fill-in of either variation, then the original rhythm

automatically resumes at the end of the current measure.

When you press another variation button (**VARIATION/FILL-IN 2** while you are playing variation 1, for example), the keyboard starts to play the newly-selected variation and does not insert a fill-in.

USING FILL-IN NEXT

To switch to the other variation of the selected auto-rhythm during play, press **SYNCHRO/FILL-IN NEXT** while the rhythm is playing. The fill-in pattern of the current variation plays, then fill-in of the other variation, and the rhythm switches to the other variation.

USING ENDING

To end the selected rhythm with a special flourish, press **INTRO/ENDING 1** or **2** while the auto-rhythm is playing. The keyboard plays a special ending of the selected type (1 or 2), then automatically stops the rhythm.

The ending pattern starts immediately if you press the button before the second beat of the current measure. If you press after the second beat, the ending pattern starts from the next measure.

USING AUTO ACCOMPANIMENT

The 18 keys on the left side of the keyboard with note labels above them are called accompaniment keys.

Accompaniment Keyboard　　**Melody Keyboard**
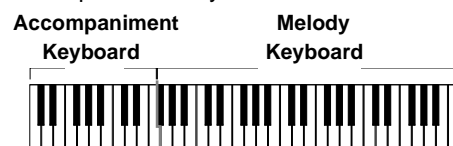
You can set the keyboard to play three different types of auto accompaniment using the accompaniment keys. ☑

- **Concert Chord** — lets you play chords on the accompaniment keys using chord formations of from one to four notes. The number of keys you press determines the type of chord that plays (see "Concert Chord").
- **Standard Fingering** — lets you play chords on the accompaniment keys using standard chord formations of three or four notes (see "Standard Fingering" on Page 11).
- **Full-Range Chord** — lets you play the melody using the entire keyboard while the keyboard plays accompaniment based on your auto-rhythm selection.

The auto-accompaniment patterns consist of four parts: chord 1, chord 2, bass, and rhythm. You can delete any of the parts by using the mixer function. See "Using the Mixer" on Page 12.

ADJUSTING THE ACCOMPANIMENT VOLUME

The keyboard lets you adjust the volume of your accompaniment separately from the overall volume of the keyboard.

1. Press **ACCOMP VOLUME**. The current accompaniment volume setting appears.

2. Within 5 seconds, enter a number from **0 0 0** (softest) to **1 2 7** (loudest) on the keypad. The numbers appear as you press the keys.

   Or, press **ACCOMP VOLUME** then repeatedly press **–** or **+** to select the next lowest or highest accompaniment volume setting.

   To reset the accompaniment volume to its default value of 87, press **ACCOMP VOLUME** then press **–** and **+** at the same time.

CONCERT CHORD

The concert chord method lets beginning keyboard players easily select and play a chord.

The number of accompaniment keys you press determines the type of chord that plays. This chart shows the chord type that plays when you press one, two, three, or four accompaniment keys at the same time.

Number of Keys Pressed	Chord Type
C D E F G A B C D E F	Major
C D E F G A B C D E F	Minor (m)
C D E F G A B C D E F	Dominant Seventh (7)
C D E F G A B C D E F	Minor Seventh (m7)

The lowest note you play determines the key of the chord. For example, if the lowest note is C, the keyboard plays a C chord. ✎

1. Set **MODE** to **CONCERT CHORD**.

2. Enter a two-digit auto-rhythm number.

3. To start the auto-rhythm before the auto accompaniment, press **START/STOP** or I**NTRO/ENDING 1** or **2**.

   Or, to synchronize the start of the selected auto-rhythm with your accompaniment, press **SYNCHRO/FILL-IN NEXT**.

4. Begin the accompaniment at the desired interval by pressing the desired accompaniment key(s).
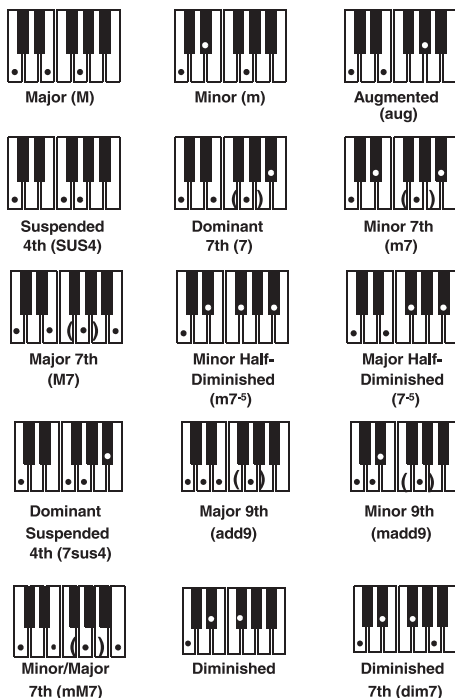
   To play a melody along with the accompaniment, press any key(s) to the right of the accompaniment keys.

5. Adjust the tempo and **VOLUME** to the desired levels.

6. To change chords without interrupting the rhythm, simply press the auto accompaniment key(s) required to form the new chord.

7. To stop auto accompaniment and the auto-rhythm, press **START/STOP**.

STANDARD FINGERING

The standard fingering method uses standard formations of three or four notes, and lets the experienced musician play a wider variety of accompaniment chords. ✎

This chart shows the 15 chord types you can play on your keyboard by using standard fingering.

Major (M)	Minor (m)	Augmented (aug)
Suspended 4th (SUS4)	Dominant 7th (7)	Minor 7th (m7)
Major 7th (M7)	Minor Half-Diminished (m7-5)	Major Half-Diminished (7-5)
Dominant Suspended 4th (7sus4)	Major 9th (add9)	Minor 9th (madd9)
Minor/Major 7th (mM7)	Diminished	Diminished 7th (dim7)

Follow these steps to start standard fingering auto accompaniment.

1. Set **MODE** to **FINGERED**.

2. Select and enter an auto-rhythm.

3. To start the auto-rhythm before your auto accompaniment, press **START/STOP** or **INTRO/ENDING 1** or **2**.

   Or, to synchronize the start of the selected auto-rhythm with your accompaniment, press **SYNCHRO/FILL-IN NEXT**.

4. Begin the accompaniment at the desired interval by pressing at least three accompaniment keys to play the desired chord.

   To play a melody along with the accompaniment, press any key(s) to the right of the accompaniment keys.

5. Adjust **TEMPO** and **VOLUME** to the desired levels.

6. To change chords without interrupting the rhythm, simply press the auto accompaniment keys required to form the new chord.

7. To stop auto accompaniment and the auto-rhythm, press **START/STOP**.

FULL-RANGE CHORDS

While the concert chord and standard fingering methods limit chord formations to the accompaniment keys, the full-range chord method lets you play chords of any type using any of the keyboard's keys.

Set **MODE** to **FULL RANGE CHORD** and follow the steps under "Standard Fingering". If you press three or more keys that form a chord anywhere on the keyboard, the keyboard plays that chord. The keyboard responds with melody sounds if you press fewer than three keys. ✎

In the full-range chord mode, the keyboard recognizes 23 more chords (in addition to the 15 in the fingered chord mode). The following is an example of those chords with C as the base note.

$C_6 \bullet Cm_6 \bullet C_{69}$.

$$\frac{C^\sharp}{C} \bullet \frac{D}{C} \bullet \frac{E}{C} \bullet \frac{F}{C} \bullet \frac{G}{C} \bullet \frac{A^\flat}{C} \bullet \frac{B^\flat}{C}$$

$$\frac{B}{C} \bullet \frac{C^\sharp m}{C} \bullet \frac{Dm}{C} \bullet \frac{Fm}{C} \bullet \frac{Gm}{C} \bullet \frac{Am}{C} \bullet \frac{B^\flat m}{C}$$

$$\frac{Dm_7^{\flat 5}}{C} \bullet \frac{A^{\flat 7}}{C} \bullet \frac{F_7}{C} \bullet \frac{Fm_7}{C} \bullet \frac{Gm_7}{C} \bullet \frac{A^{\flat add9}}{C}$$

NOTE

Using Auto Harmonize

- Auto harmonize does not work when you select full range chord auto accompaniment or no auto accompaniment.

- The harmony melody in auto harmonize mode uses Channel 5. You can change the tone or volume setting of the harmony by using the keyboard's mixer function (see "Using the Mixer").

Using the Mixer

- Normally, keyboard play is assigned to Channel 1. When you use auto accompaniment, parts are assigned to Channels 6–10.

- When you use the keyboard as the sound source for another MIDI device, all 16 channels are assigned musical instrument parts, Channel 10 is reserved for drum parts only, per MIDI standard.

- The mixer settings also affect the corresponding MIDI output.

USING AUTO HARMONIZE

When using auto-accompaniment in the fingered or concert chord modes, press **AUTO HARMONIZE** to automatically add harmony to your melodies. The indicator next to AUTO HARMONIZE lights, and the keyboard adds harmony based on the chord playing on the accompaniment key section.

USING ONE-TOUCH PRESET

The keyboard's one-touch preset feature recalls these characteristics for a selected rhythm:

USING THE MIXER

The keyboard plays multiple parts at the same time in up to 16 separate channels during auto accompaniment, or memory playback, or when receiving MIDI data. You can control the on/off setting, volume, and parameters of each of the keyboard's channels just as you would with a sound mixer.

This table shows the parts assigned to each channel.

Channel	Part
1	Main tone
2	Layered tone
3	Split tone
4	Layered/split tone
5	Harmonize tone
6	Auto accompaniment part 1
7	Auto accompaniment part 2
8	Auto accompaniment part 3
9	Auto accompaniment bass part
10	Auto accompaniment rhythm part
11	Memory track 1
12	Memory track 2
13	Memory track 3
14	Memory track 4
15	Memory track 5
16	Memory track 6

Editing the Status of a Channel

You can turn a channel off to delete a specific part.

1. Press **MIXER**. The MIXER indicator and the last selected channel appear.

2. Repeatedly press **+** or **–** to select the channel you want to edit.

3. Repeatedly press ▼ (**ENTER**) then ▶ (**CURSOR**) to display the current status of the channel — **on** or **oFF**.

4. Press **+** to turn on the channel or **–** to turn it off.

   on (default): Turns on the current channel. A bar appears at the bottom of the level meter for the selected channel.

- tone
- tempo
- layer on/off
- effect type
- auto harmonize on/off

After selecting a rhythm, press **ONE TOUCH PRESET**. The keyboard enters synchro standby mode. Start the accompaniment. The rhythm plays at a suitable setting and the keyboard sounds the selected tone for the selected rhythm.

   oFF: Turns off the current channel. The bar at the bottom of the level meter disappears.

5. To edit other channels, press ▲ (**EXIT**) to return to the channel selection screen, then repeat steps 2–4.

To exit the edit mode, press **MIXER**. The display shows the edited status of the channels.

Editing Parameters

You can change the settings of six parameters for the selected channel.

1. Select the channel you want to edit as described in Steps 1 and 2 of "Editing the Status of a Channel".

2. Press ▼ (**ENTER**) to enter the parameter edit mode.

3. Repeatedly press ◄ or ► to select the parameter you want to change.

   Tone Parameters

   Tone No. (**000** to **247**) — sets the tone assigned to the channel. When the assigned tone is an advanced tone, the display shows only two digits.

   Part on/oFF – turns each channel on or off.

   Volume (**000** to **127**) — controls the volume of the selected channel.

   Pan (**-64** to **+63**) — controls the pan (relative position of the tone between left and right speaker channels). **-64** is fully left, **0** is the center position, and **+63** is fully right.

   Oct (Octave) **Shift** (**-2** to **+2**) – shifts the range of the tone up or down by octave.

   Tuning Parameters

   C (Coarse) **Tune** (**-24** to **+24**) — coarsely tunes the pitch of the selected channel in semitone units.

   Fine Tune (**-100** to **+100**) — fine tunes the pitch of the selected channel in cent

units. A cent is one hundredth of a semitone. There are 12 semitones per octave.

Effect Parameters

Rvb (Reverb) **Send** (**000** to **127**) – controls how much reverb is applied. **000** is reverb off, **127** is maximum.

Cho (Chorus) **Send** (**000** to **127**) – controls how much chorus is applied. **000** is no chorus, **127** is maximum.

DSP Line on/oFF – use to turn the DSP line on or off for a particular channel.

4. Repeatedly press **+** or **–** or enter a number using the number buttons to change the parameter setting.

5. To edit other channels, press ▲ (**EXIT**) to return to the channel selection display, select the channel, then repeat Steps 2–4.

6. To exit the parameter edit mode, press **MIXER**.

USING THE TONE SYNTHESIZER

The keyboard's custom tone synthesizer lets you create up to 32 of your own original tones. To create a "user" tone, you simply select one of the keyboard's 100 preset tones or 127 GM tones, change its parameters, then store the new tone in a memory location from 238 to 247. You select and use a user tone as you would a preset tone. ✎

The parameters you can change are divided into the following groups. ✎ ☼

- Volume Characteristic — Attack Time, Release Time, Resonance, Cutoff Frequency
- Tone Pitch — Vibrato type, Vibrato Delay, Vibrato Depth, Vibrato Rate, Octave Shift
- Tone Characteristic — Level, Touch Sense, Reverb Send, Chorus Send, DSP Line, DSP Type, DSP Parameter

Creating and Storing a User Tone

1. Select the preset tone (except 228–237) you want to use as a basis for your user tone.

2. Press **SYNTH**. The keyboard enters the Custom Tone Synthesizer mode and **Atk Time** (Attack Time, the first parameter) appears.

3. Repeatedly press ◀ or ▶ (**CURSOR**) to display the parameter you want to change.

Attack Time (**Atk Time**) (**-64** to **+63**) — Sets the speed of the attack (the period from when you press a key to when the tone reaches its maximum volume). The greater the value, the quicker the attack.

Release Time (**Rel. Time**) (**-64** to **+63**) — Controls the speed of a tone's release (the period from when you release a key to when the tone stops sounding). The greater the value, the quicker the release.

Vibrato Type (**Vib. Type**) **Sin**, **tri**, **SAU**, or **Sqr** — Sets the vibrato type as sine wave (**Sin**), triangle wave (**tri**), sawtooth wave (**SAU**), or square wave (**Sqr**).

Vibrato Delay (**VibDelay**) (**-64** to **+63**) — Sets the amount of time before vibrato starts.

Vibrato Depth (**VibDepth**) (**-64** to **+63**) — Sets the depth of vibrato effect.

Vibrato Rate (**Vib.Rate**) (**-64** to **+63**) — Sets the speed of the vibrato effect.

Cut Off Frequency (**C-offFrq**) (**-64** to **+63**) — – Adjusts the timbre of the sound. A higher cut off frequency gives brighter timber, lower cut off frequency produces a softer timbre.

Resonance (**Resonan**) (**-64** to **+63**) — Sets the resonance of the tone. Resonance enhances the harmonic component around the cut off frequency to create a distinctive sound. The larger the value, the more distinctive the sound. ✎

Octave Shift (**OctShift**) (**-2** to **+2**) — Shifts the range of the tone up or down by octave.

Level (**Level**) (**0** to **127**) — Controls the overall volume of the tone. The greater the value, the greater the volume. Setting a level of zero means that the tone does not sound at all.

Touch Sensitivity (**TchSense**) (**-64** to **+63**) — Controls changes in the volume of the tone depending on how hard you strike the keys. You can specify more volume for stronger striking and less volume for lighter striking, or you can specify 00 to set the same volume regardless of how hard you strike the keys.

Reverb Send (**Rvb Send**) (**0** to **127**) — Controls the reverb effects.

Chorus Send (**Cho Send**) (**0** to **127**) — Controls the chorus effects.

DSP Line (**DSP Line**) **on/oFF** — Sets DSP line on or off.

DSP Type (Number and name of the applied DSP appears) — Selects the DSP type.

DSP Parameter — Sets DSP parameters. See "DSP (Digital Signal Processor)" on Page 7. ✎

✎ **NOTE** ✎

Using the Tone Synthesizer

- You cannot use tones 228–237 (drum set tones) as base tones.
- The preset tone you use as the basis for a user tone is not changed.
- Tone locations 238–247 initially contain the tone number 000. The user tone you store in any of those locations replaces it.

Creating and Storing a User Tone

- A new or revised user tone replaces the existing user tone.
- Layer, split, auto accompaniment, demo tune play, and MIDI functions are all disabled while the keyboard is in the Custom Tone Synthesizer mode.
- For some tones, setting the resonance too high might cause distortion or noise. If you encounter this, lower the resonance setting.
- While you are setting the three DSP parameters, an indicator appears next to DSP.

☼ **HINT** ☼

- To make it easier to create your own tone, start with a preset tone that is similar to the one you are trying to create.
- Experiment with different settings. There are no real rules about what a tone should sound like. Let your imagination run free and experiment with different combinations. You might be surprised at what you can achieve!

Using the Tone Synthesizer

When you store a tone with DSP line turned on, all the DSP parameters are recalled as you select the tone.

4. Repeatedly press **+** or **–** to change the parameter's setting, or use the number buttons to directly enter a value for the parameter.

   If you want to change another parameter, repeat Steps 3, 4, and 5.

5. To store the settings, press ▼ (**ENTER**) to display the tone number (**238** – **247**) where you want to save the user tone. ✎

6. Repeatedly press + or – until the tone number you want appears.

7. Press ▼ (**ENTER**) to save the user tone. **Save OK** appears briefly and the keyboard exits the Custom Tone Synthesizer mode.

   Or, press ▲ (**EXIT**) to exit the Custom Tone Synthesizer mode without storing a new tone.

USING THE REGISTRATION MEMORY

Your keyboard can save different setups of controls in its registration memory. This lets you instantly recall your favorite settings. The registration memory consists of four banks (0 – 3), each with four memory locations (1 – 4), totaling up to 16 settings. You can save each of the following settings in each registration memory: ✎

- tone
- rhythm
- tempo
- split on/off
- split point
- layer on/off
- mixer settings (Channels 1–10)
- effect settings
- equalizer settings
- touch response settings
- assignable jack setting (see "Using a Sustain Pedal" on Page 15)
- transpose (see "Changing Keys" on Page 14)
- tuning (see "Tuning the Keyboard" on Page 14)

- accompaniment volume

- auto harmonize on/off

STORING A SETUP

1. Set the desired controls to the setting you want to store.

2. Within 5 seconds, repeatedly press **BANK** until the desired bank number appears.

3. While holding down **STORE**, press the desired **REGISTRATION** button (**1**, **2**, **3**, or **4**). **Store** appears after the selected bank/location number/letter.

4. Release **STORE** and **REGISTRATION**.

5. Repeat Steps 1–4 to store more setups.

RECALLING A SETUP

1. Repeatedly press **BANK** until the desired bank number appears.

2. Within 5 seconds, press the desired **REGISTRATION** button (**1**, **2**, **3**, or **4**). **Recall** appears after the selected bank/ location number/letter.

SPECIAL FEATURES

CHANGING KEYS

The keyboard automatically selects the key of middle C each time you turn it on. For added flexibility as you play, the keyboard lets you change (transpose) the musical key in which it plays. You can transpose the key up or down 24 semitones (two octaves). ✎

1. Press **TOUCH/TRANSPOSE/SETTING**, then repeatedly press ◀ or ▶ (**CURSOR**) until **00 Trans** appears. The displayed number is the number of semitones to which the keyboard is set, compared to its default key.

2. Within 5 seconds, repeatedly press **–** or **+** to lower or raise the key. Each time you press **–** or **+**, the key changes by 1 semitone. As you raise the key, 1 is

C#, 2 is D, and so on. As you lower the key, –1 is B, –2 is B♭, –3 is A, and so on.

3. Press **TOUCH/TRANSPOSE/SETTING** to exit the menu setting mode.

TUNING THE KEYBOARD

Although your keyboard never goes out of tune, it lets you adjust its pitch to match other instruments or musical recordings.

A cent is the measurement that represents the acoustical interval between two tones. 1,200 cents equal 1 octave. You can tune the keyboard to within –99 to +99 of its default pitch. ✎

1. Press **TOUCH/TRANSPOSE/SETTING**, then repeatedly press ◀ or ▶ (**CURSOR**) until **00 Tune** appears. The number on

the display is the number of "cents" to which the keyboard is currently tuned, compared to its default pitch.

2. Within 5 seconds, repeatedly press – or + to lower or raise the keyboard's pitch. Each time you press the key, the number decreases or increases by 1 cent.

USING TOUCH RESPONSE

Your keyboard's touch response feature lets you adjust the volume of your music's tone based on how hard you strike the key(s), so you can add emotion to your music.

1. Press **TOUCH/TRANSPOSE/SETTING**. **Touch** and the current setting (default: **2 Normal**) appear.

2. Within 5 seconds, repeatedly press – or + to select the touch response level, **oFF Touch**, **1 Light**, **2 Normal**, or **3 Heavy**.

   At the **Light** setting, light key pressure results in a loud sound, and very heavy key pressure results in a more powerful sound. When you select **oFF Touch**, the indicator next to TOUCH RESPONSE disappears and the tone does not change regardless of how you press the key. ☑

USING A SUSTAIN PEDAL

For added flexibility and control as you make music, you can connect an optional sustain pedal, available through your local RadioShack store or online at *www.radioshack.com*. A sustain pedal lets you sustain or soften the keyboard's sound, or even start and stop an auto-rhythm.

To connect a sustain pedal to your keyboard, insert the pedal's plug into **SUSTAIN/ASSIGNABLE JACK** on the back of the keyboard.

You can adjust the keyboard to these settings when you use a sustain pedal.

    SUS (Sustain)—Causes one or more notes to linger after they are played.

    Sos (Sostenuto)—Similar to sustain, but only sustains the key that was pressed when you press the pedal.

    SFt (Soft)—Softens the sound.

    rhy — Starts or stops the selected rhythm.

Follow these steps to change the setting for **SUSTAIN/ASSIGNABLE JACK**.

1. Press **TOUCH/TRANSPOSE/SETTING**, then repeatedly press ◄ or ► (**CURSOR**) until **LCD/Jack** appears.

2. Repeatedly press ▼ (**ENTER**) then repeatedly press ◄ or ► (**CURSOR**) until **Jack** and the current setting (default: **SUS**) appear.

3. Within 5 seconds, repeatedly press + or – until the desired setting (**SUS**, **SoS**, **SFt**, or **rHy**) appears.

   Press the sustain pedal as you play to hear the desired sound or to start/stop the selected auto-rhythm.

ADJUSTING THE DISPLAY CONTRAST

1. Press **TOUCH/TRANSPOSE/SETTING**, then repeatedly press ◄ or ► (**CURSOR**) until **LCD/Jack** appears.

2. Press ▼ (**ENTER**). **06 Contrast** appears.

3. Within 5 seconds, repeatedly press + or – until you can view the display clearly. The number changes from 0 to 12.

RESETTING THE KEYBOARD

The keyboard retains various settings even when you turn the power off, so long as you do not disconnect power. You can, however, delete or initialize some settings without deleting others.

1. Press **TOUCH/TRANSPOSE/SETTING**, then repeatedly press ◄ or ► (**CURSOR**) until **Init/Del** appears.

2. Press ▼ (**ENTER**). **Init Mix?** appears.

3. Within 5 seconds, repeatedly press ◄ or ► (**CURSOR**) until the item you want to reset appears.

   InitMix? — Initializes the mixer parameters you assigned by the mixer function or by input from an external sequencer.

   InitPar? — Initializes all parameters, except for the display contrast setting.

   rHy nnn Del? — Deletes the data of the user rhythm number *nnn*. See "Using the Data Download Service" on Page 21.

   InitSys? — Deletes all data in the user area.

4. Press **YES**. **Sure?** appears, prompting you to confirm the initialization/deletion. Press **YES** again. The keyboard completes initialization/deletion and exits the menu setting mode.

Special Features

USING THE SONG MEMORY

The keyboard lets you record up to two separate songs (with up to about 3,500 notes) in memory for later playback. You can use either of two methods to record a song — real-time recording (you record as you play) or step recording (you enter notes and chords one-by-one).

You can record on each of the keyboard's six tracks separately. Besides notes, each track can have its own tone number. Then, when you play back the tracks together, it sounds like an entire six-piece band. Also, you can use different mixer settings for each track.

Track 1 is the main track, and you can use it to record auto accompaniment, as well as keyboard play. Tracks 2 through 6 are melody tracks, and you can use these for recording a secondary melody that includes keyboard play.

Because each track is independent of the others, you only need to re-record a single track if you make a mistake while recording on it.

If the remaining memory is less than 100 notes, the measure and beat numbers flash. When memory becomes full, recording automatically stops (and auto-accompaniment or rhythm stops playing, if used).

Memory contents are saved as long as power is supplied to the keyboard. Unplugging the adapter without batteries or with weak batteries erases the memory. To prevent data loss, connect an adapter before replacing the batteries.

Turning off the keyboard while recording erases the contents of the track you were recording.

You can transfer memory contents to another MIDI device.

REAL-TIME RECORDING

With real-time recording, the notes are recorded as you play them on the keyboard. 💡

1. Repeatedly press **SONG MEMORY** until **Record** appears. 📝

2. Within 5 seconds, press **+** or **–** (or **0** or **1**) to select a song number.

3. Press **CHORD/TR 1** to select Track 1. While the keyboard is in memory record mode, the level meters for channels 11 through 16 correspond to memory tracks 1 through 6. When all four bars are lit, that channel has something in memory: if only one bar is lit, that track is empty.

4. If desired, you can change the following settings:

- Tone number

- Rhythm number. (To record without an auto-rhythm, skip Step 5 of "Real-Time Recording." Recording starts when you press a key.)

- Tempo. (Do not change the tempo unless you already know the desired tempo. Pressing **START/STOP** to hear the tempo causes recording to begin).

- MODE

5. Press **START/STOP** to start recording. 💡

   To start recording with synchro start, press **SYNCHRO/FILL-IN NEXT** instead of **START/STOP.** Recording starts when you play a note or a chord on the accompaniment keys.

   To synchro start auto accompaniment with an intro pattern, press **SYNCHRO/FILL-IN NEXT** and then **INTRO/ENDING 1** or **2** instead of **START/STOP.** Recording starts with the intro pattern when you play a note or a chord on the accompaniment keys.

   To start auto accompaniment during a recording, press **INTRO/ENDING 1** or **2** instead of **START/STOP.** Play the melody keys to start recording. When you reach the point where you want accompaniment to start, play a chord on the accompaniment keys.

6. Play the keyboard. You can also record auto accompaniment chords, tuning, and pedal operations.

7. Press **START/STOP** to end recording.

   If you make a mistake, press **START/STOP** to stop recording and begin again from Step 1, or you can edit the contents. See "Editing Memory Contents" on Page 18.

   This data is stored on Track 1 along with the notes you played:

- tone number

- rhythm number

- rhythm controller (INTRO/ENDING 1 or 2, VARIATION/FILL-IN 1 or 2, etc.) operations

- pedal operations

- accompaniment volume

- effect type

See "Recording Multiple Tracks" on Page 18 to record on the other five tracks. 📝

PLAYING BACK FROM SONG MEMORY

1. Repeatedly press **SONG MEMORY** until **Play** appears.

2. Within 5 seconds, repeatedly press **+** or **–** (or **0** or **1**) to select a song number.

3. Within 5 seconds, press **START/STOP** to play back the song you selected. You can use **TEMPO** to adjust the playback tempo.

4. Press **START/STOP** again to stop playback. 🖊

STEP RECORDING

With step recording, you can record a chord progression one chord at a time. (If you want to record one note at a time, refer to "Recording Multiple Tracks" on Page 18.)

Follow these steps to record chords with step recording.

1. Repeatedly press **SONG MEMORY** until **Step Rec** appears.

2. Within 5 seconds, repeatedly press **+** or **–** to select a song number.

3. If desired, you can change the rhythm number and MODE settings.

4. Press **CHORD/TR1** to select Track 1. The REC indicator flashes briefly, then lights steadily.

5. Press **SYNCHRO/FILL-IN NEXT**, then play a chord using the chord play method determined by the current MODE setting (Fingered, Concert Chord, Full Range Chord, or Normal).

   When MODE is set to NORMAL, specify the chord using the root keys and chord-type keys. See "Specifying Chords in the Normal Mode".

   To start accompaniment with an intro pattern, press **INTRO/ENDING 1** or **2** after **SYNCHRO/FILL-IN NEXT**.

   To switch to a rhythm variation, press **VARIATION/FILL-IN 1** or **2** immediately before playing the chord.

   To insert an ending or fill in, press **INTRO/ENDING 1** or **2**, or **VARIATION/FILL-IN 1** or **2** immediately before entering the chord.

   To step-record chords without a rhythm, skip this step. The chord of the specified length is recorded. A rest can be specified there, so you can create an original chord pattern.

   To add chord accompaniment during rhythm play, enter rests from the beginning of the recording up to where you want accompaniment to start. Then enter only the chords (no rests).

6. Use the number buttons to specify the length of the chord. See "Specifying the Length of a Note."

7. For each additional chord you want to enter, play the chord and use the number buttons to specify its length.

8. When you finish recording, press **START/STOP**. The keyboard is now in playback standby mode. You can try playing back the song by pressing **START/STOP**. 🖊

Specifying Chords in the Normal Mode

To enter chords when **MODE** is set to **NORMAL** during step recording, you must specify them using a method other than Concert Chord or Fingered. That way, you can enter 18 chord types using only two keys.

While holding down the desired chord root key, press the chord key to specify the chord. The root and chord types are labeled above each key. The chord root letter and type of chord also appear as you play a chord.

Specifying the Length of a Note

During step recording, repeatedly press **+** or **–** or enter a number using the number buttons to specify the length of each note. Use numbers **1** through **6** to specify whole notes (1), half notes (2), quarter notes (3), eighth notes (4), 16th notes (5), and 32nd notes (6).

To enter a dot or triplicate, hold down **7** (dot) or **9** (triplicate), then press **1** through **6**.

To enter a tie, press **8** then enter the first and second notes.

To enter a rest, press **0**, then press **1** through **9** to specify the length of the rest.

Correcting Mistakes

Before finishing your step recording entry, you can move the entry point back to correct the data you entered. This deletes all data after the point where you make corrections.

1. Before you press **START/STOP** to end recording, press ◄ (**CURSOR**). This moves the entry point back one "space." The data recorded at the current entry point appears, the REC indicator turns off, and the STEP indicator flashes.

2. While monitoring the data on the display, repeatedly press ◄ or ► (**CURSOR**) to move the entry point to the data you want to change.

3. Press ▼ (**ENTER**) then press ► (**CURSOR**). **Rewrite?** appears.

4. Press **YES** to clear all data after the current entry point. Press **NO** or ▲

🖊 **NOTE** 🖊

Playing Back from Song Memory

- You can use change the rhythm, use layer and/or split during memory playback.

- Pressing **START/STOP** during the song restarts the song from the beginning.

- You can set the volume and pan position of the playback tracks using the mixer. This setting data is output through MIDI OUT.

- The entire keyboard functions as a melody keyboard during playback, regardless of the MODE setting.

Step Recording

- If you make a mistake, see "Correcting Mistakes".

- When you record on a track that already contains data, the keyboard automatically locates the end of the previous recording — measure, beat, or clock (1/48 of a beat) — and adds your new entry to it.

- You can enter a 0 (a rest) in Step 5 of "Step Recording", but the rest is ignored when the accompaniment plays.

- The rhythm number and INTRO/ENDING 1 or 2, SYNCHRO/FILL-IN NEXT, and VARIATION/FILL-IN 1 or 2 operations are stored on Track 1, along with the notes you played. See "Recording Multiple Tracks" to record on the other five tracks.

- During recording on Tracks 2 through 6, the entire keyboard functions as a melody keyboard, regardless of the current MODE setting.

- The tone number is stored on the selected track in addition to the notes you played.

- You can turn off a track during playback by using the mixer function (see "Using the Mixer" on Page 12).

Correcting Mistakes

The REC indicator lights and the STEP indicator stops flashing when you move to the end of the recording.

(**EXIT**) to cancel the rewrite operation.

RECORDING MULTIPLE TRACKS

In addition to Track 1, where you record auto accompaniment as well as keyboard play, there are five other tracks you can use to record melody parts only. You can record different tones on these tracks and build a full ensemble of instruments.

You can play back what you already recorded on Track 1 (or any other track) while you record on Tracks 2–6.

Real-Time Recording

1. Repeatedly press **SONG MEMORY** until **Record** appears.

2. Within 5 seconds, repeatedly press + or – to select a song number.

3. Press the desired **SONG MEMORY TRACK** (**2**–**6**) to select the track you want to record on.

4. If desired, you can change the tone number and tempo settings. You can change the tempo to one that is easy for you to follow.

5. Press **START/STOP** to start recording. The contents of any tracks already recorded start to play.

6. Play on the keyboard what you want to record on the selected track.

7. Press **START/STOP** to end recording.

If you used them, tone number and optional pedal operation are also stored on the selected track in addition to the notes you played.

Step Recording

1. Repeatedly press **SONG MEMORY** until **Step Rec** appears.

2. Within 5 seconds, repeatedly press **+** or **–** to select a song number.

3. Press the desired **SONG MEMORY TRACK** (**2**–**6**) to select the track you want to record on.

4. Change the tone, if desired. After selecting a tone, press any keyboard key to clear the tone selection display and return to the note input screen.

5. Use the keyboard to enter notes or **0** to enter rests.

   • When you enter a note using the keyboard with touch response turned on, the key pressure is also recorded.

   • To delete a rest entry, press **0** again.

6. Use **1**–**9** to enter the length of the note or rest.

7. Continue entering notes by playing them and specifying their length.

8. Press **START/STOP** to end recording.

EDITING MEMORY CONTENTS

You can recall and change individual notes and parameter settings from a song in memory.

1. Repeatedly press **SONG MEMORY** until **Step Rec** appears.

2. Within 5 seconds, repeatedly press **+** or **–** to select a song number.

3. Use **SONG MEMORY TRACK** (**1**–**6**) to select the track you want to edit.

4. Press ◄ (**CURSOR**) to enter edit mode.

5. Repeatedly press ◄ or ► (**CURSOR**) to move to the entry you want to change.

   You can change the parameter that is flashing on the display. To change a different parameter, repeatedly press ◄ or ► (**CURSOR**) so the parameter you want to edit flashes.

6. Make the desired changes to the selected parameter.

   The procedures you use to change a parameter depend on the type of data it contains. See "Editing Techniques and Display Contents".

7. Repeat Steps 5 and 6 to edit other parameters.

8. Press **START/STOP** when you are finished.

Editing Techniques and Display Contents

Key Pressure (Velocity) — Repeatedly press + and – or use the number buttons to adjust the key pressure.

Pitch — Enter a new note on the keyboard or repeatedly press + or – to change to the next higher or lower note. The keyboard and the staff on the display show your new entry.

Chord — Use the appropriate chord fingering method for the MODE setting.

Tone Number/Rhythm Number — Repeatedly press + or – or use the number buttons to enter a number.

Rhythm Controller (**INTRO/ENDING 1** or **2**, **VARIATION/FILL-IN 1** or **2**, **SYNCHRO/FILL-IN NEXT**) — Press the button for the function you want to change to.

EDITING A SONG

You can delete an entire song, a specific track, or data associated with the song.

Deleting a Song

1. Repeatedly press **SONG MEMORY** until **Play** appears.

2. Repeatedly press **+** or **–** to select the song number.

3. Press ▼ (**ENTER**). **SongDel?** appears

4. Press **YES**. **Sure?** appears, prompting you to confirm the deletion.

5. Press **YES** again.

Deleting All Data in a Specific Track

1. Repeatedly press **SONG MEMORY** until **Play** appears.

2. Repeatedly press + or – to select the song number.

3. Press ▼ (**ENTER**). **SongDel?** appears

4. Repeatedly press ◄ or ► (**CURSOR**) until **Tr.Del?** appears.

5. Press the appropriate **SONG MEMORY TRACK** (**1-6**) to select the track(s) you want to delete. You can specify more than one track by pressing more than one button. ✍

6. Press **YES**. **Sure?** appears, prompting you to confirm the deletion.

7. Press **YES** again to delete the track(s).

Rewriting Song Data (Panel Record)

Each song in the keyboard's memory has a section in its header called the *panel record*. This section contains initial data for the recording. You can rewrite this portion if necessary.

The settings stored in panel records are:

- Rhythm
- Tempo
- Accomp Volume
- Reverb On/Off
- Reverb Type
- Chorus On/Off
- Chorus Type
- DSP Type
- Equalizer Type

The following mixer parameters are also stored in the panel record:

- Tone
- Part On/Off
- Volume
- Pan
- Oct Shift
- Coarse Tune
- Fine Tune
- Reverb Send
- Chorus Send

1. Repeatedly press **SONG MEMORY** until **Play** appears.

2. Repeatedly press + or – to select the song number.

3. Make the changes in settings as desired.

4. Press ▼ (**ENTER**). **SongDel?** appears.

5. Repeatedly press ◄ or ► (**CURSOR**) until **Pnel Rec?** appears.

6. Press **YES** to rewrite the header data.

USING MIDI

Your keyboard includes a feature called MIDI (Musical Instrument Digital Interface). MIDI is the universal standard for sending and receiving performance data between all types of electronic musical instruments, regardless of manufacturer. Using MIDI, you can play music on your keyboard and another instrument at the same time while pressing the keys on only one, record your music to a sequencer, acquire a wider selection of preset tones from a sound module, and much more.

Connecting your keyboard to another MIDI device requires a MIDI cable (not supplied).

For detailed specifications of the MIDI function, see the "MIDI Implementation Chart" on Page 41. For more information about MIDI parameters, visit *www.radioshack.com* and download the "MD-1121 MIDI Implementation."

ABOUT MIDI

Every MIDI-equipped instrument has MIDI OUT and IN terminals, and some also have a MIDI THRU terminal. Each of these terminals serves a different purpose.

MIDI OUT sends MIDI data to ("talks to") other MIDI instrument(s).

MIDI IN receives ("listens to") MIDI data sent by other MIDI instrument(s).

MIDI THRU lets you connect ("network") additional MIDI instruments, and sends other MIDI devices a copy of all data it receives through its MIDI IN terminal.

Your keyboard has **MIDI OUT** and **MIDI IN** terminals.

The cable that connects MIDI devices does not actually carry sound between them, like a speaker wire carries sound from a receiver to a speaker. Instead, MIDI-equipped devices communicate with each other using digital codes (instructions). One MIDI device sends digital instructions representing exactly what is being played on it. The other MIDI device receives and translates those instructions, then produces (or records) the sound exactly as it was played on the first device.

MAKING THE MIDI CONNECTIONS

To connect your keyboard to another MIDI-equipped device, you must use a MIDI cable (available at RadioShack). 💥

To send MIDI data from your keyboard, use a MIDI cable to connect the keyboard's **MIDI OUT** terminal to the other device's MIDI IN terminal.

To receive MIDI data on your keyboard, use a MIDI cable to connect the keyboard's **MIDI IN** terminal to the other device's MIDI OUT terminal. 📝

MIDI DATA

Your keyboard can send and receive several different types of MIDI data. The keyboard's tones, rhythms, and other types of MIDI data are sent automatically as you play.

The keyboard parts (Channels 1 through 4) are sent over the corresponding channels. When you turn auto harmonize on (see "Using Auto Harmonize" on Page 12), the harmonized notes are sent.

You can set accompaniment parts to be sent over the corresponding channels (Channels 6 – 10). See "Changing MIDI Settings." The keyboard's prerecorded tunes cannot be sent as MIDI data.

The keyboard can receive data over all 16 MIDI mixer channels at the same time.

The received message is interpreted as chord change data when you set **MODE** to **CONCERT CHORD** or **FINGERED**. See "Changing MIDI Settings."

CHANGING MIDI SETTINGS

1. Press **TOUCH/TRANSPOSE/SETTING**, then repeatedly press ◀ or ▶ (**CURSOR**) until MIDI appears.

2. Press ▼ (**ENTER**). 01 Keybd Ch appears.

3. Within 5 seconds, repeatedly press ◀ or ▶ until the parameter you want to change appears.

   Keybd Ch (Keyboard Basic Channel) (Default: 01) — Sets the channel for sending MIDI data to an external device.

   Chord (MIDI In Chord Judge) (Default: Off) — When set to on, the keyboard interprets the received basic channel note data as auto accompaniment chords using the current chord fingering method.

   AcompOut (Accompaniment Out) (Default: Off) — Set to on to send auto accompaniment as MIDI data.

   Local (Local Control) (Default: On) — Set to on to send data to the keyboard's speakers and another MIDI device

simultaneously. Set to oFF to send data only to another MIDI device (the keyboard's speakers are muted).

4. Repeatedly press + or − or use the number buttons to change the setting as required. Then press ▲ (**EXIT**).

NOTES ABOUT THE MIDI IMPLEMENTATION CHART

The "MIDI Implementation Chart" on Page 41 shows specific details about how your keyboard is compatible with the MIDI standard. The following notes explain how the keyboard works within the MIDI standard.

Basic Channel — The MIDI standard allows for the use of up to 16 channels to exchange data. Like a TV broadcast, each of these channels can contain different data. The keyboard can send and receive data on all 16 of these channels.

Mode — The MIDI standard allows for four separate modes of operation. The keyboard sends and receives data in Mode 3. This means that the data sent and received by the keyboard can be polyphonic and can be sent or received on only one channel at a time.

Note Number — The MIDI standard allows for note numbers from 0 through 127. This number represents each possible note that a device can play. The lowest note number (0) is five octaves below middle C and the highest note number (127) is three octaves above middle C. The keyboard can send and receive all 128 note numbers.

Velocity — The MIDI standard allows for velocity numbers from 0 through 127. Velocity is how fast a key is pressed (or if the key is pressed at all) or how loud a note sounds. A velocity of 0 means that the key is not pressed. The lowest velocity (1) is pianissimo and the highest velocity (127) is fortissimo. The keyboard can send and receive all 128 velocity numbers.

Pitch Bender — The keyboard receives (but cannot send) pitch bending signals.

Control Change — This feature sends data on various controllers, each having its own number. For the details of each parameter, see "MIDI Data".

Program Change — This feature changes the preset sounds. Each sound number corresponds to a program number between 0 and 127. See "MIDI Data".

System Exclusive — This feature sends special signals unique to the keyboard.

All Notes Off — This feature is a kind of panic button: it stops the current sounds from playing. Only the keyboard receives this message.

Active Sense — This means the keyboard's sound turns off in the event the connection cable to the **MIDI IN** terminal is accidentally disconnected.

USING THE DATA DOWNLOAD SERVICE

Visit *www.radioshack.com* to download the preset accompaniments, tones, DSPs, and registration data, as well as the software to transfer the downloaded data from your PC to the keyboard.

The software not only allows you to transfer the downloaded data to the keyboard, but also to store the various settings you made on the keyboard onto your PC's storage device. See the instructions provided with the software.

TROUBLESHOOTING

Trouble	Possible Cause	Remedy
No sound, even if keys are pressed.	The keyboard has turned off automatically.	Press **POWER**.
	The volume is turned down.	Adjust **VOLUME**.
	The headphones are connected.	Disconnect the headphones.
	Power supply problem.	Make sure the batteries are fresh and inserted correctly, or the AC adapter is connected securely.
	You are pressing too few accompaniment keys while MODE is set to FINGERED.	Set MODE to NORMAL or CONCERT CHORD. Or press 3 or 4 keys to form a chord while MODE is set to FINGERED.
	Local control is off.	Set local control to ON (see "Changing MIDI Settings" on Page 20).
	Mixer channel 1 is turned off or its volume is set too low.	Turn on Channel 1 or raise the volume setting (see "Using the Mixer" on Page 12).
No sound when connected to an external amplifier.	The volume is turned down.	Adjust VOLUME.
	Defective connection cord.	Replace the connection cord.
No sound when receiving and playing MIDI data.	MIDI cables are not connected properly.	Check the connection.
	Mixer channel is turned off or its volume is too low.	Turn channel 1 ON or raise the volume setting (see "Using the Mixer" on Page 12).
The key or tuning does not match when playing along with another MIDI instrument.	The tuning or transpose parameter is set to a value other than 0 or 00.	Set the tuning or transpose parameter to 0 or 00.
Some parts do not play during song memory playback.	Channels are turned off or volume set too low.	Use the mixer function to turn the channel on or to raise the volume.
Cannot record auto-accompaniment.	A track other than Track 1 is selected. (Tracks 2 through 6 are for melody only.)	Select Track 1.
Sounds sent to another MIDI device by the keyboard do not sound correct.	The other device's MIDI THRU function is turned on.	Turn off the MIDI THRU function on the other device.
Cannot record chord accompaniment data on a computer.	Accomp MIDI Out is set to **oFF**.	Set MIDI Out to **on**.

CARE

Keep the keyboard dry; if it gets wet, wipe it dry immediately. Use and store the keyboard only in normal temperature environments. Handle the keyboard carefully; do not drop it. Keep the keyboard away from dust and dirt, and wipe it with a damp cloth occasionally to keep it looking new.

SERVICE AND REPAIR

If your keyboard is not performing as it should, take it to your local RadioShack store for assistance. Modifying or tampering with the keyboard's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it.